

REMARKS

After entry of this amendment, claims 25, 27–37, and 39–44 will be pending. Claims 25, 27, 37, and 39 have been amended. Support for the amendments may be found in the claims and specification as filed at least at, for example, page 6, lines 8–23; page 11, lines 17–22; and page 12, lines 10–14 and 15–17. No new matter has been added.

Interview Summary

The undersigned thanks the Examiner for his time and courtesy for granting the interview that took place on April 28, 2010. The undersigned notes that the discussion focused on the measurement of a signal propagation delay and the use thereof to generate a local synchronization signal, and that the Examiner agreed that the cited prior art references do not disclose, teach, or suggest such features. Accordingly, this paper is intended to constitute a proper recordation of the interview in accordance with MPEP § 713.04

Claim Objections

Claims 27 and 39 are objected to because they depend from cancelled claims. Applicants hereby amend the claims to refer to pending claims 25 and 37, respectively, and respectfully request withdrawal of this objection.

Rejection of Claims Under 35 U.S.C. § 112

Claim 27 is rejected under 35 U.S.C. § 112 for lacking sufficient antecedent basis. Applicants hereby amend the claim to remove the limitation “tracking,” and respectfully request withdrawal of this rejection.

Rejection of Claims Under 35 U.S.C. § 103

Claims 25–27, 30–33, 37–39, 42, and 43 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,275,544 to Aiello *et al.* (“Aiello”) in view of U.S. Patent No. 4,285,064 to Hodge (“Hodge”). Aiello appears to disclose a base-band receiver apparatus that detects ultra-short spread spectrum pulses and recovers clock and data from the detected pulses.¹ Pulses emitted from a master transceiver 12a to slave transceiver nodes 12b, 12c experience propagation delays t_1 , t_2 .² The different propagation delays t_1 , t_2 may create a different phase offset between the master transceiver 12a and the slave transceiver nodes 12b, 12c.³ Each slave transceiver 12b, 12c includes an offset detector circuit 90 for determining the phase offset – i.e., a delay between a phase-locked local clock and the incoming pulses – by oversampling the incoming pulses to find the location of data header codes 48a–48n.⁴ The Office action admits that Aiello is silent on measuring a signal propagation delay of a network-wide time signal between a reference time generator and each of a plurality of nodes and relies instead on Hodge to provide this feature.

Hodge appears to disclose a time-division multiple-access (“TDMA”) satellite communications architecture.⁵ A plurality of ground stations communicate via satellite by assigning each of the stations “primary” status, one at a time, in sequence.⁶ The current primary station broadcasts a point-to-multipoint transmission to the rest of the stations (“secondary” stations) via satellite.⁷ By sequentially changing the primary station, logical network links may be established between all of the stations.⁸

In the Background section, Hodge discusses a prior-art TDMA satellite scheme involving duplex communication between pairs of ground stations.⁹ To avoid overlap between pairs of ground stations competing for the same satellite time slice, a reference burst is sent from a

¹ See Aiello, Abstract.

² See Aiello, column 6, lines 3–9.

³ See Aiello, column 11, lines 46–51.

⁴ See Aiello, column 4, lines 54–57 and column 12, lines 18–23.

⁵ See Hodge, Abstract.

⁶ See Hodge, column 1, line 57 – column 2, line 19.

⁷ See Hodge, *Id.*

⁸ See Hodge, FIG. 1 and related text.

⁹ See Hodge, column 1, lines 13–16.

reference station to all other stations for synchronization of their local clocks.¹⁰ Hodge dismisses this approach as imposing limits on achievable data rates.¹¹

Neither Aiello nor Hodge, however, alone or in combination, disclose measuring a signal propagation delay of a network-wide time signal between a reference time generator and each of a plurality of nodes, as required by amended independent claims 25 and 37. At most, Hodge merely discloses distributing a reference burst to ground stations. Distributing a signal and measuring the signal's propagation delay are two separate and distinct acts. Just because Hodge may disclose signal distribution, it does not follow that either Aiello or Hodge disclose propagation delay measurement. For example, claims 25 and 37 require a separate signal propagation delay measurement between a reference time generator and each of a plurality of nodes; in other words, N measurements for N separate nodes. Aiello and Hodge do not disclose, teach, or suggest any such plurality of measurements.

Furthermore, even if Hodge disclosed propagation delay measurement, which it does not, neither Hodge nor Aiello disclose generating a local synchronization signal using the measured signal propagation delay, as required by amended independent claims 25 and 37. Instead, Aiello discloses determining phase offset by oversampling incoming pulses to find the location of data header codes, and Hodge discloses synchronizing local clocks based on a transmitted reference burst, not a propagation delay measurement.

Even if the cited references, in combination, disclosed all of the elements of claims 25 and 37 (which they do not), one of skill in the art would not combine the references. Hodge teaches away from the use of a local-clock synchronization signal, referring to it only in the Background section as a requirement of a prior-art, duplex-based satellite communication system. A point-to-multipoint protocol, as described by Hodge, achieves higher data rates, does not risk signal overlap, and does not require local-clock synchronization, because only one primary station is allowed to transmit at a time. Thus, one of skill in the art would not apply the local-clock synchronization signal of Hodge to the disclosure of Aiello at least because Hodge teaches it would result in a slow data rate.

¹⁰ See Hodge, column 1, lines 24–27.

¹¹ See Hodge, column 1, lines 31–35.

For at least these reasons, Applicants respectfully submit that claims 25 and 37 (and claims dependent therefrom) are patentable over the cited art, and respectfully request withdrawal of these rejections.

CONCLUSION

In light of the foregoing, Applicants respectfully submit that all claims are now in condition for allowance.

Enclosed are a petition for a three-month extension of time and authorization to charge the extension fee to Deposit Account No. 07-1700 under reference number BCO-001A. Applicants believe that no additional fees are necessitated by the present paper. However, in the event that any additional fees are due, the Commissioner is hereby authorized to charge any such fees to Deposit Account No. 07-1700.

If the Examiner believes that a telephone conversation with Applicants' attorney would expedite allowance of this application, the Examiner is cordially invited to call the undersigned.

Respectfully submitted,

Date: April 30, 2010
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